

A1
Contd
layer 13 covers an outside surface of the measured gas sensing electrode 12 of the
gas sensing element 1.

Paragraph at page 10, lines 17-24:

A2
The heat generating section 31 is indicated by a region "A" in Fig. 4A. The
region "A" includes a distal region A1 and a proximal region A2. Both of the
distal region A1 and the proximal region A2 are made of a W-Re alloy. The distal
region A1 is thin in width compared with the proximal region A2. A resistance
value of the distal region A1 is 1.2Ω . A resistance value of the proximal region
A2 is 1.0Ω . Both of the distal region A1 and the proximal region A2 have the
same axial length of 3mm. In Fig. 4A, the contact portion 30 of the heater 3 is
encircled by a dotted line.

IN THE CLAIMS:

Please cancel claims 1 and 3 without prejudice or disclaimer as to the
subject matter contained therein. Please amend claims 2, 4 and 5, and add new
claims 6 and 7, as follows. A marked-up version of the amended claims showing
the revisions thereto is attached.

2. (Amended) A gas sensor comprising:

A3
a gas sensing element including a cup-shaped cylindrical solid
electrolytic element having a reference gas chamber defined therein, a measured
gas sensing electrode provided on an outer surface of said solid electrolytic

element, and a reference gas sensing electrode provided on an ^{inter}(outer) surface of said solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber,

wherein said heater has a heat generating section for generating heat

in response to electric power supplied thereto, and

an electric resistive value of said heat generating section is

maximized in the vicinity of a contact portion where said heater is brought into contact with ^{the}an inside surface of said ^{solid electrolytic element}reference gas chamber.

4. (Amended) A gas sensor comprising:

a gas sensing element including a cup-shaped cylindrical solid

electrolytic element having a reference gas chamber defined therein, a measured

gas sensing electrode provided on an outer surface of said solid electrolytic

element, and a reference gas sensing electrode provided on an inner surface of said

solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber,

wherein a contact portion is provided on an outer cylindrical surface

of said heater so that said contact portion is brought into contact with ^{the}an inside surface of said ^{solid electrolytic element}reference gas chamber,

a heat generating peak position of said heater being in the vicinity of said contact portion,

said heater having a heat generating section for generating heat in response to electric power supplied thereto, and

said heat generating section has a high resistive portion provided at a proximal end side thereof.

5. (Amended) A gas sensor comprising:

A4
a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber,

wherein said heater has a heat generating pattern for generating heat in response to electric power supplied thereto,

a contact portion is provided on an outer cylindrical surface of said heater so that said contact portion is brought into contact with an inside surface of said reference gas chamber, and

a heat generating peak position of said heater appears within 3/4 of a line segment axially extending from a distal end of said heat generating pattern closer to said contact portion to a center of said heat generating pattern for a time

A4 duration more than one fifth of a time required for the heat generating peak position of the heater to reach 900 °C after said heater is activated.

Please add new claims 6 and 7 as follows:

--6. (New) A gas sensor comprising:

AS a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber, wherein a contact portion is provided on an outer cylindrical surface of said heater so that said contact portion is brought into contact with an inside surface of said reference gas chamber,

a heat generating peak position of said heater is in the vicinity of said contact portion,

said heater has a heat generating section for generating heat in response to electric power supplied thereto, and

said heat generating section has a high resistive portion at a distal side thereof.

7. (New) A gas sensor comprising:

a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and

A5 a heater accommodated in said reference gas chamber,

wherein a contact portion is provided on an outer cylindrical surface of said heater so that said contact portion is brought into contact with an inside surface of said reference gas chamber,

a heat generating peak position of said heater is in the vicinity of said contact portion,

said heater has a heat generating section for generating heat in response to electric power supplied thereto, and

said heat generating section has a high resistive portion at a distal end side thereof and another high resistive portion at a proximal end side thereof.--

REMARKS

Upon entry of this amendment, claims 2, 4 and 5-7 are pending. By the present amendment, claims 1 and 3 have been canceled without prejudice, claims